U.S. Department
of Transportation
Federal Aviation Administration

Advisory Circular

Subject: STANDARDS FOR AIRPORT MARKINGS

Date: 12/06/2004 **AC No:** 150/5340-1H
Initiated by: AAS-310 **Change:** 2

1. PURPOSE. Change 2 to Advisory Circular (AC) 150/5340-1H, *Standards for Airport Markings*, incorporates new mandatory hold markings that reflect changed standards for the Precision Obstacle Free Zone (POFZ) and Category (CAT) II/III operations. It corresponds to revisions to AC 150/5300-13, *Airport Design,* that change the Precision Object Free Area (POFA) to the POFZ and incorporate new separation standards for taxiways that parallel runways used for certain low visibility operations.

The Federal Aviation Administration (FAA) has also revised low visibility operation procedures: these revised procedures require that the POFZ be clear when an aircraft on a vertically guided final approach is within 2 nautical miles of the runway threshold and the reported ceiling is below 250 feet (76 m) and/or visibility less than a ¾ statue mile (runway visual range below 4,000 feet) (1 km)). If the POFZ is not clear, the minimum authorized height above touchdown (HAT) and visibility is 250 feet and a ¾ statute mile respectively. The POFZ is considered clear even if the wing of the aircraft holding on a taxiway penetrates the POFZ; however, neither the fuselage nor the tail may infringe on the POFZ (see the most recent versions of AC 150/5300-13, *Airport Design,* and FAA Order 8260.3, *United States Standard for Terminal Instrument Procedures*).

Further, the FAA is revising Terminal Instrument Procedures (TERPS) standards for the separation distance between a runway equipped for CAT II/III operations and the parallel taxiway that requires aircraft to hold for a runway, in certain circumstances, at a location other than the runway holding position.

Accordingly, the FAA has developed marking standards to assist airport operators in designating (1) the POFZ holding position in those instances where a taxiway, holding apron, or other movement area would result in an aircraft fuselage or tail penetrating the POFZ, and (2) the alternative holding position on a taxiway during CAT II/III operations necessary to maintain adequate aircraft separation. The FAA has made a corresponding change to sign standards contained in the most recent version of AC 150/5340-18, *Standards for Airport Sign Systems*.

2. PRINCIPAL CHANGES. Except for minor changes involving punctuation, spelling and grammar, all changes are marked with a vertical line in the left margin of the column. Specifically, this change updates the Table of Contents to reflect proposed changes throughout the document and renames paragraph 24, "Holding Position Marking for Instrument Landing System/Microwave Landing System (ILS/MLS) Critical Areas," "Holding Position Marking for Instrument Landing System (ILS)/Precision Obstacle Free Zone (POFZ)." Additional revisions appear throughout paragraph 24 to incorporate new standards for marking the boundary of the POFZ and the holding position for CAT II/III operations.

3. APPLICATION. By January 1, 2007, airport operators holding an Airport Operating Certificate issued under 14 CFR part 139, Certification of Airports, must comply with POFZ/TERPS marking and sign standards. All other airports should comply with these standards, as applicable. After this date, approach and departure procedures may be affected if the airport operator has not complied with these new standards. However, prior to the 2007 compliance date, an airport operator must comply with new POFZ/TERPS standards, as applicable, if there is a modification of runway/taxiway configuration (including new displacement of threshold) or a modification of the airport environment that could potentially reduce the existing level of safety, unless an ongoing environmental analysis study will not allow for compliance with the new standards.

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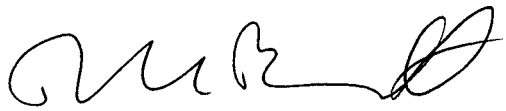

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SECTION 3. TAXIWAY MARKINGS.

20. APPLICATION. All taxiways should have centerline markings and runway holding position markings whenever they intersect a runway. Taxiway edge markings should be installed wherever there is a need to separate the taxiway from a pavement that is not intended for aircraft use or to delineate the edge of the taxiway that is not otherwise clearly visible**.** Instrument Landing System/Microwave Landing System (ILS/MLS) critical areas holding position markings, intermediate holding position markings where a taxiway/taxiway intersect, and taxiway shoulder markings should be installed as appropriate.

21. TAXIWAY CENTERLINE MARKINGS.

a. Purpose. Taxiway centerline markings provide a visual cue to permit taxiing along a designated path.

b. Location. On a straight section of a taxiway, taxiway centerline markings are provided along the centerline of the designated taxiway. On a taxiway curve, the markings continue from the straight portion of the taxiway at a constant distance from the outside edge of the taxiway.

(1) At taxiway intersections where fillets do not meet the standards of AC 150/5300-13, *Airport Design*, and judgmental oversteering is required, the centerline markings continue straight through the intersection as shown in Figure 12a. Where adequate fillets exist as determined by the most demanding aircraft, the centerline markings follow the taxiway curve, as shown in Figure 12b, to permit cockpit-over-centerline steering.

(2) At taxiway intersections with runway ends, the taxiway centerline is terminated at the runway edge except that the following applies:

(a) Where there is a displaced threshold the centerline continues into the displaced area of the runway.

(b) The taxiway centerline continues across the runway when it is a crossing route as designated by the local Air Traffic Facility.

(3) On all other taxiways, the taxiway centerline marking curves onto the runway and extends parallel to the runway centerline marking for a distance of 200 feet (60 m) beyond the point of tangency or terminating at the threshold bar, which ever is less and three feet from the runway centerline measured near edge to near edge, See Figure 11, detail A. This lead-in or lead-off line (the taxiway centerline) is interrupted for all runway markings.

(4) For taxiways crossing a runway, either straight across or offset and normally used as a taxi route, the taxiway centerline marking may continue across the runway but is normally interrupted for any runway markings. For low visibility operations, when the runway visual range is below 1200 feet (360 m), taxiway centerline markings continue across all runway markings with the exception of the runway designation marking.

c. Color. Taxiway centerline markings are yellow.

d. Characteristics. A width of 6 inches (15 cm) to 12 inches (30 cm) is acceptable for a taxiway centerline. However, the width selected must be uniform for the entire length of the taxiway unless it involves a surface movement guidance and control system (SMGCS) route. The centerline is continuous in length except where it intersects a holding position marking (see Figure 10) or a runway designation (see paragraph 21b(4)). When a taxiway or part of a taxiway is designated as a SMGCS route, the width of the taxiway centerline must be 12 inches (30 cm) wide and is outlined in black in light colored pavement. The centerline width of the remaining part of a taxiway that is not a part of a SMGCS route can change abruptly at the intersection with other taxiway centerline markings, e.g. from 12 inches (30 cm) to 6 inches (15 cm).

22. TAXIWAY EDGE MARKING.

a. Purpose. Taxiway edge markings are used to delineate the edge of the taxiway. They are primarily used when the usable taxiway edge does not correspond with the edge of the pavement. Two types of markings are used depending upon whether the aircraft is supposed to cross the taxiway edge. The outer edge of the stripe defines the edge of the usable pavement.

(1) Continuous Markings. Continuous taxiway edge markings are used to delineate the taxiway edge from the shoulder or some other contiguous paved surface not intended for use by aircraft (see Figure 10). When an operational need exists, the continuous taxiway edge marking may be used to delineate the edge of the taxiway from a contiguous non-paved surface. Continuous taxiway edge markings are not to be used in situations where aircraft would be required to cross them.

(2) Dashed Markings. Dashed taxiway edge markings are used when there is an operational need to define the edge of a taxiway or taxilane on a paved surface where the pavement contiguous to the taxiway edge is intended for use by aircraft, e.g., an apron (see Figure 10). Where contiguous to an apron, the markings must be installed at a distance equal to one-half the taxiway width from taxiway centerline. Dashed edge stripes are not to be used to provide wing tip clearances for parked aircraft on an apron. See taxiway/taxiway hold lines Par. 25, or non-movement area boundary markings Par. 38, as appropriate.

b. Location. Taxiway edge markings are located on the taxiway at its defined edge, and are part of the usable taxiway pavement.

c. Color. Taxiway edge markings are yellow.

d. Characteristics. Continuous taxiway edge markings consist of a continuous double yellow line, with each line being at least 6 inches (15 cm) in width, spaced 6 inches (15 cm) apart (edge to edge). These markings can also be used to designate islands, which have been painted green or striated with yellow markings. Dashed taxiway edge markings consist of a broken double yellow line, with each line being at least 6 inches (15 cm) in width, spaced 6 inches (15 cm) apart (edge to edge). The lines are 15 feet (4.5 m) in length with 25-foot (7.5 m) gaps (see Figure 10). These markings are not to be used to designate islands except for some very special conditions.

23. RUNWAY HOLDING POSITION MARKINGS ON TAXIWAYS.

a. Purpose. At airports with operating airport traffic control towers, these markings identify the location on a taxiway where a pilot is to stop when he/she does not have clearance to proceed onto the runway. Holding position markings may be supplemented with Geographic Position Markings (see paragraph 32) as part of the airport's SMGGS Plan. At airports without operating control towers these runway holding position markings identify the location where a pilot should assure there is adequate separation with other aircraft before proceeding onto the runway.

b. Location. The runway holding position markings should be located in accordance with Table 4 on all taxiways that intersect runways based upon the most critical aircraft using the runway. These markings are also located on taxiways crossing through the runway approach area so that an aircraft on the taxiway will not penetrate any of the following: the surface used to locate the runway threshold, inner approach obstacle free zone, inner transitional obstacle free zone, and clearway. If located closer, such that aircraft penetrate the Terminal Instrument Procedures (TERPS) surfaces, higher minimums may result. A discussion of these surfaces is contained in AC 150/5300-13. Locating holding position markings other than in accordance with the preceding criteria must be approved by the FAA. Except as specified in paragraph 17, holding position markings should not be used for any situation other than those described in this paragraph.

c. Color. Holding position markings on taxiways are yellow and will be outlined in black on light colored pavements.

d. Characteristics. Runway holding position markings consist of a set of 4 yellow lines and 3 spaces, each 12 inches (30 cm) in width, as shown in Figure 10.* The solid lines of these markings are always on the side where the aircraft is to hold. The markings are installed perpendicular to the taxiway centerline but may be canted from the perpendicular in unique situations, such as illustrated in Figure 11. In these cases, it may be necessary to install additional holding position signs, runway guard lights, etc. Holding position lines on taxiways may be angled as needed where two or more taxiways intersect at the hold line. On angled taxiways the distances given in Table 4 defines the edge of the holding position line closest to the runway centerline. On an angled taxiway, consideration should also be given to locating the markings such that no portion of an aircraft (i.e., wing tip) placed at the holding position line will penetrate the runway safety area.

*Note: At airports that do not have an airport traffic control tower and are not certificated under 14 CFR part 139, each of the four yellow lines and three spaces may be 6 inches (15 cm) in width.

24. HOLDING POSITION MARKINGS FOR INSTRUMENT LANDING SYSTEM (ILS)/ PRECISION OBSTACLE FREE ZONE (POFZ).

a. Purpose. The ILS critical area/POFZ holding position marking identifies the location on a taxiway or holding bay where an aircraft is to stop when it does not have clearance to enter the ILS critical area or the POFZ. This marking also can be used to identify the boundary of a microwave landing system (MLS) critical area and to identify the holding position for CAT II/III operations. Marking the boundary of these areas is necessary to protect the navigational aid signal.

b. Location. The ILS critical area/POFZ holding position marking is located on the taxiway at the perimeter of the ILS (or MLS) critical area or the POFZ and, as appropriate, at the holding position for CAT II/III operations.

(1) Where the distance between the runway holding position marking on a taxiway and the holding position marking for an ILS (or MLS) critical area is 50 feet (15 m) or less, one holding position may be established, provided it will not affect capacity. In this case, the runway holding position marking is moved back to the ILS (or MLS) holding position and only the runway holding position marking is installed.

(2) If a taxiway penetrates the POFZ, only one holding position marking should be installed to delineate the ILS critical area and the POFZ. This holding position marking should be located at the more conservative boundary of these two areas. In this instance, the ILS/POFZ holding position marking cannot be replaced with, or used in lieu of, a runway holding position marking.

(3) FAA will designate the ILS (or MLS) critical area and POFZ boundaries and, as appropriate, determine the holding position location for CAT II/III operations for the airport operator. The markings are installed perpendicular to the taxiway centerline but may be canted from the perpendicular in unique situations, such as illustrated in Figure 11.

c. Color. The ILS critical area/POFZ holding position markings on taxiways are yellow and must be outlined in black on light colored pavements.

d. Characteristics. The ILS critical area/POFZ holding position marking consists of a set of two 2-foot (0.6 m) wide parallel yellow lines spaced 4 feet (1.2 m) apart, as shown in Figure 10.* In between these two lines and perpendicular to them, there are sets of two 1-foot (0.3 m) wide parallel yellow lines spaced 1-foot (0.3 m) apart. See Figure 10 for proper spacing dimensions.

*Note: At airports that do not have airport traffic control towers and are not certificated under 14 CFR part 139, the airport operator has the option to reduce the dimension for the width of the parallel yellow lines and spaces from 2 feet (.6 m) to 1 foot (.3 m) and from 4 feet (1.2 m) to 2 feet (.6 m) respectively.

25. INTERMEDIATE HOLDING POSITION MARKINGS FOR TAXIWAY/TAXIWAY INTERSECTIONS.

a. Purpose. These markings identify the location on a taxiway or apron where aircraft are supposed to stop when told to hold short of another taxiway or apron. They should be used at airports with an operating ATCT where there is an operational need to hold traffic at a taxiway/taxiway intersection, at a geographic position (see paragraph 32), or holding bay, as illustrated in Figure 11, to define the edge of the taxiway object free area to assure adequate clearance from taxiing aircraft.

b. Location. Holding position markings for taxiway/taxiway intersections are located for the most demanding aircraft using the airport in accordance with Table 5.

c. Color. Holding position markings on taxiways are yellow and will be outlined in black on light colored pavements.

d. Characteristics. The holding position markings for taxiway/taxiway intersections consist of a 1-foot (0.3 m) wide yellow line with 3-foot (0.9 m) long dashes and spaces. The taxiway centerline is 6 - 12 inches (15 – 30 cm) from either side of the intermediate holding position marking, as shown in Figure 10.

TABLE 5. PERPENDICULAR DISTANCES FOR TAXIWAY INTERSECTION MARKINGS FROM CENTERLINE OF CROSSING TAXIWAY.

Airplane design group[1] I	Airplane design group[1] II	Airplane design group[1] III	Airplane design group[1] IV	Airplane design group[1] V	Airplane design group[1] VI
44.5 feet	65.5 feet	93 feet	129.5 feet	160 feet	193 feet
(13.5 m)	(20 m)	(28.5 m)	(39 m)	(48.5 m)	(59 m)

[1] See the most recent version of AC 150/5300-13, *Airport Design.*

26. SURFACE PAINTED HOLDING POSITION SIGNS.

a. Purpose. Surface painted holding position signs supplement the signs located at the holding position in accordance with the most recent version of AC 150/5340-18, *Standards for Airport Sign Systems***.** This type of marking is required where the width of the holding position on the taxiway is greater than 200 feet (60 m). These markings are useful at other locations, such as where pilots have had difficulty discerning the location of the holding position.

b. Location. The edge of the surface painted holding position sign is placed 3 feet (1 m) on the left side of each taxiway centerline on the holding side of and from 2 feet (0.67 m) to 4 feet (1.34 m) prior to the holding position marking (to allow for clearance of in-pavement runway guard lights when installed) as shown in Figure 13. Holding position signs must not be painted on runways. A surface painted location sign may be located on the left side of the surface painted holding position sign when adequate pavement width exists. Surface painted taxiway direction signs are not to be co-located with a surface painted holding position sign. Surface painted taxiway location or direction signs must not be located between the runway holding position marking and the runway. Additional surface painted holding position signs may be installed as a runway incursion prevention initiative.

c. Color. The surface painted holding position sign has a red background with a white inscription, and will be outlined in black on light colored pavements.

d. Characteristics. The inscription is to have a height of 12 feet (3.67 m), however it may be reduced, as necessary to the minimum height of 9 feet (3 m). The edge of the surface painted taxiway holding position sign should be 3 feet (1 m) on the left side of the taxiway centerline. The width of the letters, numbers, and other symbols used in the inscription must be proportional to the height in order to conform in appearance to the letters, numbers, and other symbols in Appendix 1. The background is rectangular and extends a minimum of 15 inches (38 cm) laterally and vertically beyond the extremities of the inscription.

27. SURFACE PAINTED TAXIWAY DIRECTION SIGNS.

a. Purpose. Surface painted taxiway direction signs will be provided when it is not possible to provide taxiway direction signs at intersections in accordance with AC 150/5340-18 or, when necessary, to supplement such signs.

b. Location. Surface painted taxiway direction signs are 3 feet (1 m) from the centerline with signs indicating turns to the left being on the left side of the taxiway centerline and signs indicating turns to the right being on the right side of the centerline, as shown in Figure 13. Taxiway direction signs are not painted on runways, or between a runway holding position and a runway. For taxiways intersecting at 90 degrees a surface painted taxiway direction sign is combined with arrows to indicate directions and is located on the left side of the taxiway centerline.

(1) When a direction sign is not installed along side of the taxiway, the surface painted taxiway direction sign is located at the same distance from the intersection as the distance specified in AC 150/5340-18.

(2) When a surface painted taxiway direction sign supplements a direction sign installed along side of the taxiway, the surface painted direction sign may be located at or anywhere between the distance specified in subparagraph (1) above and the point of divergence of the painted centerlines.

c. Color. Surface painted taxiway direction signs have a yellow background with a black inscription.

d. Characteristics. The inscription is to have a height of 12 feet (3.67 m), however it may be reduced, as necessary to the minimum height of 9 feet (3 m). The width of the letters, numbers, and other symbols used in the inscription must be proportional to the height in order to conform in appearance to the letters, numbers, and other symbols in Appendix 1. Each taxiway designation must be accompanied by an arrow showing the general direction of turn. The background is rectangular and extends a minimum of 15 inches (38 cm) laterally and vertically beyond the extremities of the inscription. A 6-inch (15 cm) wide vertical black stripe separates each taxiway designation when more than one designation is included on either side of the centerline.

28. SURFACE PAINTED TAXIWAY LOCATION SIGNS.

a. Purpose. Surface painted taxiway location signs are used, when necessary, to supplement the signs located along side the taxiway and assist the pilot in confirming the designation of the taxiway on which the aircraft is located.

b. Location. The surface painted taxiway location signs are normally located on the right side of the taxiway centerline as shown in Figure 13. The edge of the surface painted taxiway location sign should be 3 feet (1 m) from the edge of the taxiway centerline. However, a surface painted taxiway location sign can be located on the left side of the taxiway centerline if it is located with a surface painted taxiway holding position sign on a large expanse of pavement. Location signs are not painted on runways, or between a taxiway/runway holding position and a runway.

c. Color. Surface painted taxiway location signs have a black background with a yellow inscription and yellow border around its perimeter.

d. Characteristics. The inscription is to have a height of 12 feet (3.67 m), however it may be reduced, as necessary to the minimum height of 9 feet (3 m). The width of the letters, numbers, and other symbols used in the inscription must be proportional to the height in order to conform in appearance to the letters, numbers, and other symbols in Appendix 1. The background is rectangular and extends a minimum of 15 inches (38 cm), including the 6 inch (15 cm) yellow border, laterally and vertically beyond the extremities of the inscription.

29. SURFACE PAINTED GATE IDENTIFICATION SIGNS.

a. Purpose. Surface painted gate identification signs are used, when necessary, to assist pilots in locating their destination gate. They are especially useful for low visibility operations.

b. Location. Surface painted gate identification signs may be installed in non-movement areas or movement areas, which are in the proximity of terminal buildings, as shown in Figure 14. They are located adjacent to taxiway centerlines on the side to which a turn will be made to travel toward the gate(s).

c. Color. Surface painted gate identification signs have a yellow background with a black inscription.

d. Characteristics. For surface painted gate identification signs containing one row of gate designations, as shown in Figure 14, the inscriptions must have a maximum height of 4 feet (1.2 m). For gate identification signs containing more than one row of gate designations, also shown in Figure 14, the inscriptions must have a minimum height of 3 feet (1 m). The width of the letters, numbers, and other symbols used in the inscription must be proportional to the height in order to conform in appearance to the letters, numbers, and other symbols in Appendix 1. The background is rectangular and extends a minimum of 15 inches (38 cm) laterally and vertically beyond the extremities of the inscriptions. There is no maximum size to more than one-row gate identification sign. A range of gates should be indicated with a “dash” (i.e. gate A1 through A4 is indicated by “A1–A4”). Non-sequential individual gates contained within the same gate identification sign should be separated by a “comma” (i.e., “B1, B3, B5”).

30. SURFACE PAINTED APRON ENTRANCE POINT SIGNS.

a. Purpose. Surface painted apron entrance point signs are used, when needed, to assist pilots in locating their position on an apron, which has a large expanse of continuous pavement along the edge of the terminal apron.

They are especially useful to identify entrances and exits from the terminal apron.

b. Location. Surface painted apron entrance point signs may be installed in non-movement areas or movement areas which are in the proximity of an apron leading to the terminal buildings, as shown in Figure 15. They are located 7 feet from the taxiway centerlines on the side to which a turn will be made to travel toward the apron.

c. Color. The surface painted apron entrance point sign has a yellow background with a black inscription and black border around its perimeter as shown in Figure 15.

d. Characteristics. The surface painted apron entrance point sign consists of two 9-foot (3 m) diameter circles located 7 feet from the associated taxiway/apron entrance centerline with a line leading to another 9-foot (3 m) diameter circle on the apron. Each one of three circles is comprised of a 6-inch (15 cm) outer back ring with an 8-foot (2.7 m) diameter yellow circle in the middle. The numeric identification of the three associated markings should be the same. The inscription inside the circle should be a number only, black in color and 4 feet (1.3 m) in height. The width of the numbers used in the inscription must be proportional to the height in order to conform in appearance to the numbers in Appendix 1. When installed on asphalt or other dark-colored pavements, the white ring is substituted for the black ring.

31. TAXIWAY SHOULDER MARKINGS.

a. Purpose. Holding bays, aprons, and taxiways are sometimes provided with shoulder stabilization to prevent blast and water erosion. This stabilization may have the appearance of a full strength pavement but is not intended for use by aircraft. Usually the taxiway edge marking will define this area, but conditions may exist such as stabilized islands or taxiway curves where confusion may exist as to which side of the edge stripe is intended for use by aircraft. Where such a condition exists, taxiway shoulder markings should be used to indicate the pavement is not to be used to taxi an aircraft.

b. Location. On straight sections, the marks are placed at a maximum spacing of 100 feet (30 m). On curves, the marks are placed a maximum of 50 feet (15 m) apart between the curve tangents.

c. Color. Taxiway shoulder markings are yellow. It is also acceptable to paint the stabilized island area green in lieu of shoulder markings, and to use green on both stabilized surfaces and structural pavement.

d. Characteristics. The stabilized area is marked with 3-foot (1 m) yellow stripes perpendicular to the edge stripes as shown in Figure 16. The stripes are extended to 5 feet (1.5 m) from the edge of the stabilized area or to 25 feet (7.5 m) in length, whichever is less.

32. GEOGRAPHIC POSITION MARKINGS.

a. Purpose. Geographic position markings are installed when points are necessary to identify the location of taxiing aircraft during low visibility operations. Low visibility operations are those that occur when the runway visual range (RVR) is below 1200 feet (360 m).

b. Location. These markings are located along low visibility taxi routes designated in the airport's SMGCS plan. They are positioned to the left of the taxiway centerline in the direction of taxiing. When the geographic position marking will be used by Air Traffic Control to designate a holding position, it will always be located in conjunction with and prior to the holding position marking as shown in Figure 17. When the geographic position marking is not used as a holding position, the installation of a holding position and clearance bar is optional. The geographic position marking must not be located at a runway holding position for the low visibility runway but may be located at the holding positions for other runways that the designated taxi route crosses. Unless the geographic position marking is located at a runway holding position (see paragraph 23), a taxiway/taxiway holding position marking should be used (see paragraph 25). If the geographic position marking is located at a holding position along a taxi route designated for use in visibilities below 600 RVR, then a clearance bar consisting of three yellow lights must also be installed in conjunction with the geographic position marking and holding position marking. On a particular airport, the airport operator in coordination with the regional FAA Airports Division, will determine where these markings are needed.

c. Color. A geographic position marking is a 7 foot (2 m) diameter pink circle surrounded by a 6 inch wide white ring

contiguous to a 6 inch wide black outer ring, when installed on concrete or other light colored pavements as shown in Figure 17. When installed on asphalt or other dark-colored pavements, the white ring and the black ring are reversed, i.e., the white ring becomes the outer ring and the black ring becomes the inner ring.

d. Characteristics. Geographic position markings are designated with either a number or a number and letter. The number corresponds to the consecutive position of the marking on the route. When used the letter indicates the letter designation of the taxiway on which the marking is located. If a geographic position marking is located on a taxiway with an alphanumeric designation only the alpha portion of the designation should be used for designating the geographic position markings. For example, the fourth spot on the route is located on Taxiway A7. The alphanumeric designation for this spot would be "4A". The geographic position marking is never designated with a letter followed by a number. The designation of the geographic position marking should be centered in the circle. The designation is black, has a height of 4 feet (1 m) and conforms in appearance to the numbers and letters in Appendix 1.

33. RESERVED.

34. RESERVED.

SECTION 4. OTHER MARKINGS

35. APPLICATION. The markings in this section are used, as appropriate, on airports.

36. VEHICLE ROADWAY MARKINGS.

a. Purpose. The standards for vehicle roadway markings contained in this paragraph are used to delineate roadways located on or crossing areas that are also intended for use by aircraft. Markings for roadways not located on aircraft maneuvering areas should conform, whenever possible, to those in the U.S. Department of Transportation's Manual on Uniform Traffic Control Devices.

b. Location. Vehicle roadways are delineated on aircraft maneuvering areas when there is a need to define a pathway for vehicle operations. A minimum spacing of 2 feet (0.67 m) must be maintained between the roadway edge marking and the non-movement area boundary marking (see paragraph 34) vehicle roadway markings are interrupted by taxiway markings**.**

c. Color. Vehicle roadway markings are white.

d. Characteristics.

(1) Vehicle roadway markings consist of a solid line to delineate each edge of the roadway and a dashed line to separate lanes within the edges of the roadway. The edgelines and lane lines are both 6 inches (15 cm) wide and the dashes for the lane lines are 15 feet (4.5 m) in length with a spacing of 25 feet (7.5 m) between dashes. These markings are illustrated in Figure 18.

(2) In lieu of the solid lines, zipper markings may be used to delineate the edges of the vehicle roadway wherever the airport's SMGCS working group or the airport operator determines the roadway edges need enhanced delineation. The zipper marking consists of two dashed lines side by side with alternating dashes that are 12 inches (30 cm) wide and 4 feet (1.3 m) in length, along each edge of the roadway as shown in Figure 18. Details of the zipper marking are shown in Figure 10.

(3) Where a roadway crosses a taxiway, a solid white stripe 2 feet (.67 m) wide is provided across the driving lane at the distances specified in Table 5 to assure adequate clearance from taxiing aircraft. When the roadway is not located on an aircraft maneuvering area, a frangibly mounted retro-reflective stop or yield sign should be installed on the right hand side of the roadway in conjunction with the solid white stripe.

37. VOR RECEIVER CHECKPOINT MARKINGS.

a. Purpose. VOR receiver checkpoint markings allow a pilot to check aircraft instruments with navigational aid signals.

b. Location. VOR receiver checkpoints should be on the airport apron or taxiways (preferably the holding bay but never on a runway) at points selected for easy access by aircraft but where other airport traffic would not be unduly obstructed. VOR receiver checkpoints normally should not be established at distances less than one-half mile from the facility, nor on unpaved areas. FAA Flight Inspection personnel determine the location for checkpoints and issue information for checkpoint descriptions in flight publications.

c. Color. The checkpoint is marked with a painted circle of the size and color as shown in Figure 19. The color of the letters and numerals on the sign are black on a yellow background.

d. Characteristics. VOR receiver checkpoints are provided with painted markings and an associated sign.

(1) Markings. The VOR receiver checkpoint is a circle 10 feet in diameter with a yellow arrow aligned toward the facility and surrounded by a 6 inch wide yellow ring contiguous to a 6 inch wide white outer ring as shown in Figure 19. When installed on concrete pavements, the interior of the circle is painted black.

(2) Sign. The sign should have an overall mounting height of not less than 20 inches (50.8 cm) and not more than 30 inches (76.2 cm). It should be located as nearly as practicable on an extension of the diameter line and faced perpendicularly to the line-of-sight of the viewer in the circle. The inscription on the sign should show the facility identification, channel, radial selected (published) for the check, and the plotted distance from the antenna (when applicable). The station identification and course numerals should be at least 7 inches (17.8 cm) high and the other letters and numerals at least 3 inches (7.6 cm) high. The sign shall be installed in accordance with the height and distance standards in AC 150/5340-18C Table 2, on an extension of the radial and faced perpendicularly to the line-of-sight of the viewer in the circle. An example follows:

BGR-VORTAC
114.8 (CH 95) 153/333
DME 3.8 NM

38. NON-MOVEMENT AREA BOUNDARY MARKING.

a. Purpose. Non-movement area boundary markings are used to delineate the movement area, i.e., area under air traffic control, from the non-movement area, i.e., area not under air traffic control. This marking should be used only when the need for this delineation is specified in the letter of agreement between the airport operator and airport traffic control tower, which designates the movement area.

b. Location. A non-movement area boundary marking is located on the boundary between the movement and non-movement area. In order to provide adequate clearance for the wings of taxiing aircraft, this marking should never coincide with the edge of a taxiway.

c. Color. A non-movement area boundary marking is yellow and will be outlined in black on light colored pavements.

d. Characteristics. The non-movement area boundary marking consists of two yellow lines (one solid and one dashed) as shown in Figure 10. The solid line is located on the non-movement area side while the dashed yellow line is located on the movement area side. Each line is 6 inches (15 cm) in width with a 6-inch spacing between lines. The width of the lines and space may be doubled to 12 inches (30 cm). The use of this wider marking is strongly encouraged at locations having difficulty discerning the location of the movement area. The dashes are 3 feet (1 m) in length with a 3-foot (1 m) spacing between dashes. If a taxiway centerline intersects a non-movement area boundary marking, the boundary marking shall be 6 inches from the taxiway centerline on the aircraft holding side and 3 feet (0.9 m) from taxiway centerline on the movement area side.

39. MARKING OF TEMPORARILY RELOCATED THRESHOLDS. Information on the marking, as well as lighting, of temporarily relocated thresholds is contained in AC 150/5370-2, *Airport Safety During Construction*, and AC 150/5340-24, Runway and Taxiway Edge Lighting. System.